

## CLAIMS

1. A preamplifier comprising a first and a second stage, wherein
  - the first stage comprises a PMOS transistor having an input capacitance smaller than 10 pF on its input terminal, and wherein
  - 5     - the second stage, comprising a NMOS transistor, is adapted to receive and amplify a signal from the first stage, the amplification of the received signal in the second stage being different from 1,
 wherein the amplified signal from the second stage is provided to an output terminal, said output terminal further being adapted to receive power from an external power
 10     supply so as to provide power to the preamplifier.
2. A preamplifier according to claim 1, wherein the preamplifier is implemented as an ASIC.
3. A preamplifier according to claim 2, wherein channel lengths and channel widths of the PMOS transistor are adjusted so as to obtain maximum SNR for a specific trans-
 15     ducer connected to the input terminal of the first stage.
4. A preamplifier according to claim 1, further comprising means for providing EMI protection.
5. A preamplifier according to claim 4, wherein the means for providing EMI protection comprises an on chip resistor connected to the input terminal of the preamplifier.
- 20   6. A preamplifier according to claim 4, wherein the means for providing EMI protection comprises an on chip capacitor connected between the output terminal and the ground terminal of the preamplifier.
7. A preamplifier according to claim 1, further comprising filter means adapted to receive signals from the first stage of the preamplifier, and wherein an output signal
 25     from the filter means is provided as an input signal to the second stage of the preamplifier.
8. A preamplifier according to claim 7, wherein the filter means comprises a low pass filter.

9. A preamplifier according to claim 7, wherein the filter means comprises a high pass filter.
10. A preamplifier according to claim 7, wherein the filter means comprises a notch filter.
- 5 11. A preamplifier according to claim 1, further comprising at least one bias generator for setting idle current and idle voltage of at least one of the preamplifier stages.
12. A microphone assembly comprising
- a microphone assembly housing having a sound inlet port,
  - a transducer for receiving acoustic waves, and for converting the received waves to analog signals, and
  - a preamplifier according to claim 1, wherein the preamplifier is connected to the transducer via its input terminal so as to receive the analog transducer signal from the transducer.
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13. A microphone assembly according to claim 12, wherein the transducer and the preamplifier are positioned within the microphone assembly housing, and wherein the output and ground terminal from the preamplifier is externally accessible.
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14. A telecommunication device comprising a preamplifier according to claim 1.
15. A telecommunication device according to claim 14, wherein the telecommunication device is a mobile phone.
- 20 16. A telecommunication device comprising a microphone assembly according to claim 12.
17. A telecommunication device according to claim 16, wherein the telecommunication device is a mobile phone.